Study guide for Chapter 8: Energy, Enzymes, and Metabolism

NB! This should be considered a guide to the aspects of the chapter which are most important and those which have lower priority. However, exam questions within the areas not specifically highlighted are not excluded.

Most important:

- Understand the difference between kinetic and potential energy. Know the first and second laws of thermodynamics
- Be able to describe and explain the pH and temperature dependence of enzymes
- Be able to define the following terms: metabolism, anabolic and catabolic reactions (p. 150) homeostasis (p.161)
- Explain the difference between an exergonic and endergonic reaction.
- Be able to describe the overall structure of ATP, its function as energy transporter and in coupled reactions
- Explain what an enzyme is, enzyme function, the effect of enzymes on activation energy, the active site, induced fit, co-enzymes, cofactors and prosthetic groups.
- Describe enzyme reaction mechanisms (the three main types shown in Fig 8.11)
- Describe the difference between reversible and irreversible inhibition, and the difference between competitive and non-competitive inhibition
- Explain the terms “first commitment step” and “feedback inhibition”
- describe substrate saturation curves for non-enzymatic reactions and enzyme catalysed reactions (Fig 8.13) and reactions catalysed by allosteric enzymes (Fig 8.18)